

Document And Report Documentation Page Submitted as
edoc_1075490117

Report Documentation Page		<i>Form Approved</i> OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.			
1. REPORT DATE 11 MAR 2003	2. REPORT TYPE N/A	3. DATES COVERED -	
4. TITLE AND SUBTITLE Blind Adaptive Dereverberation of Speech Signals Using a Microphone Array		5a. CONTRACT NUMBER	
		5b. GRANT NUMBER	
		5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)		5d. PROJECT NUMBER	
		5e. TASK NUMBER	
		5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Georgia Institute of Technology		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)	
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited			
13. SUPPLEMENTARY NOTES Also see ADM001520, The original document contains color images.			
14. ABSTRACT			
15. SUBJECT TERMS			
16. SECURITY CLASSIFICATION OF:	17.	18.	19a. NAME OF RESPONSIBLE

a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	LIMITATION OF ABSTRACT UU	NUMBER OF PAGES 5	PERSON Patricia Mawby, EM 1438 PHONE:(703) 767-9038 EMAIL:pmawby@dtic.mil
----------------------------------	------------------------------------	-------------------------------------	---	---------------------------------------	---

**Standard
Form 298
(Rev.
8-98)**
Prescribed
by ANSI
Std
Z39-18

pwd: cannot determine current directory!

Blind Adaptive Dereverberation of Speech Signals Using a Microphone Array

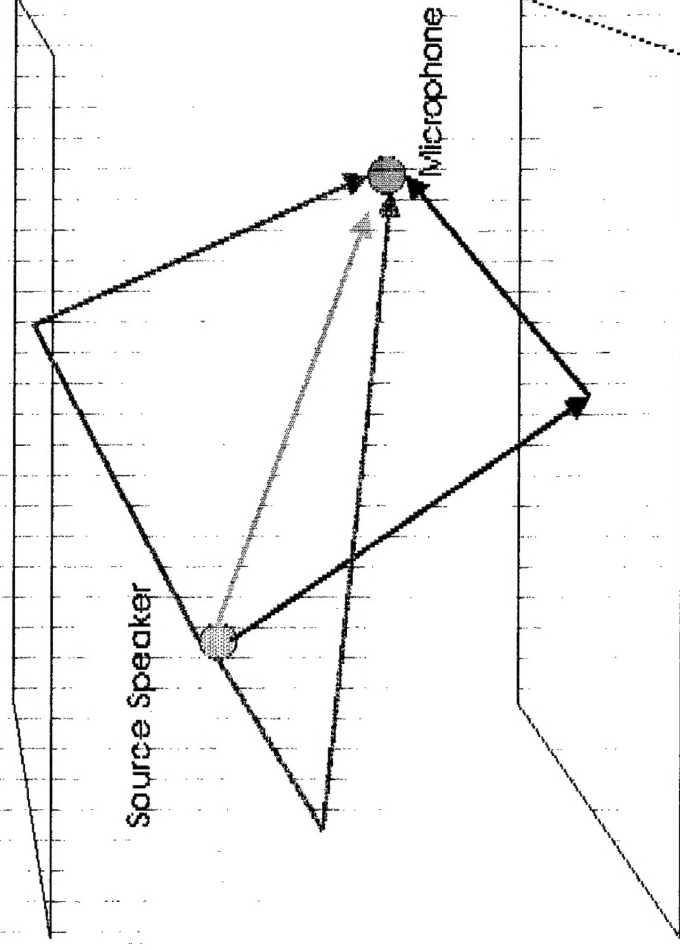
Presented by:

Tariq S. Bakir & Russell M. Mersereau

20040317 144

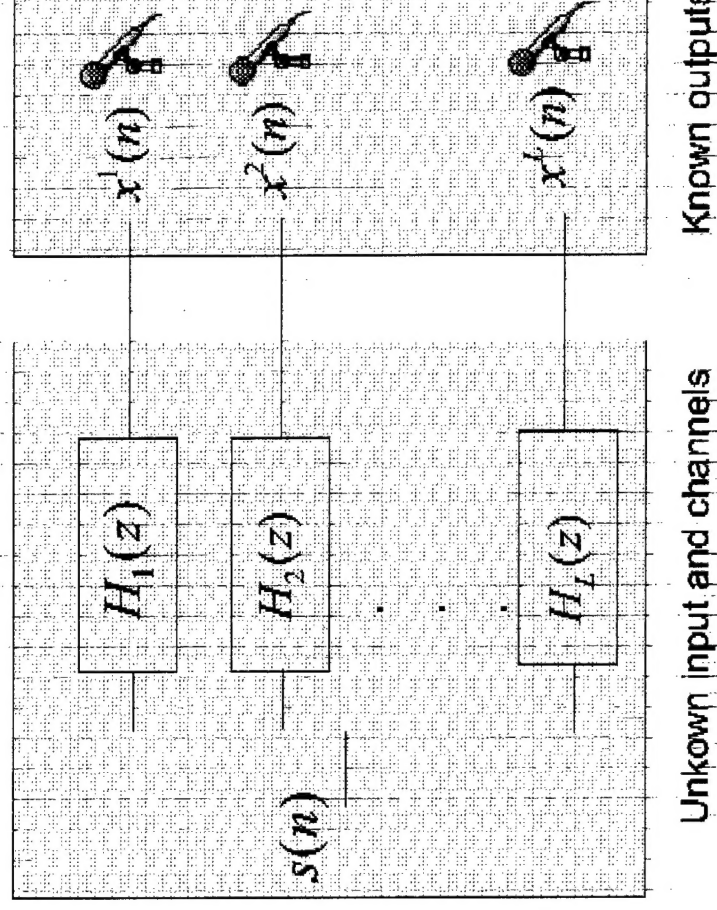
Problem Description

- Reverberation of speech signals in a closed room due to multipath signal propagation.



SIMO System Formulation

- Multiple microphones create the equivalent of multiple channels.

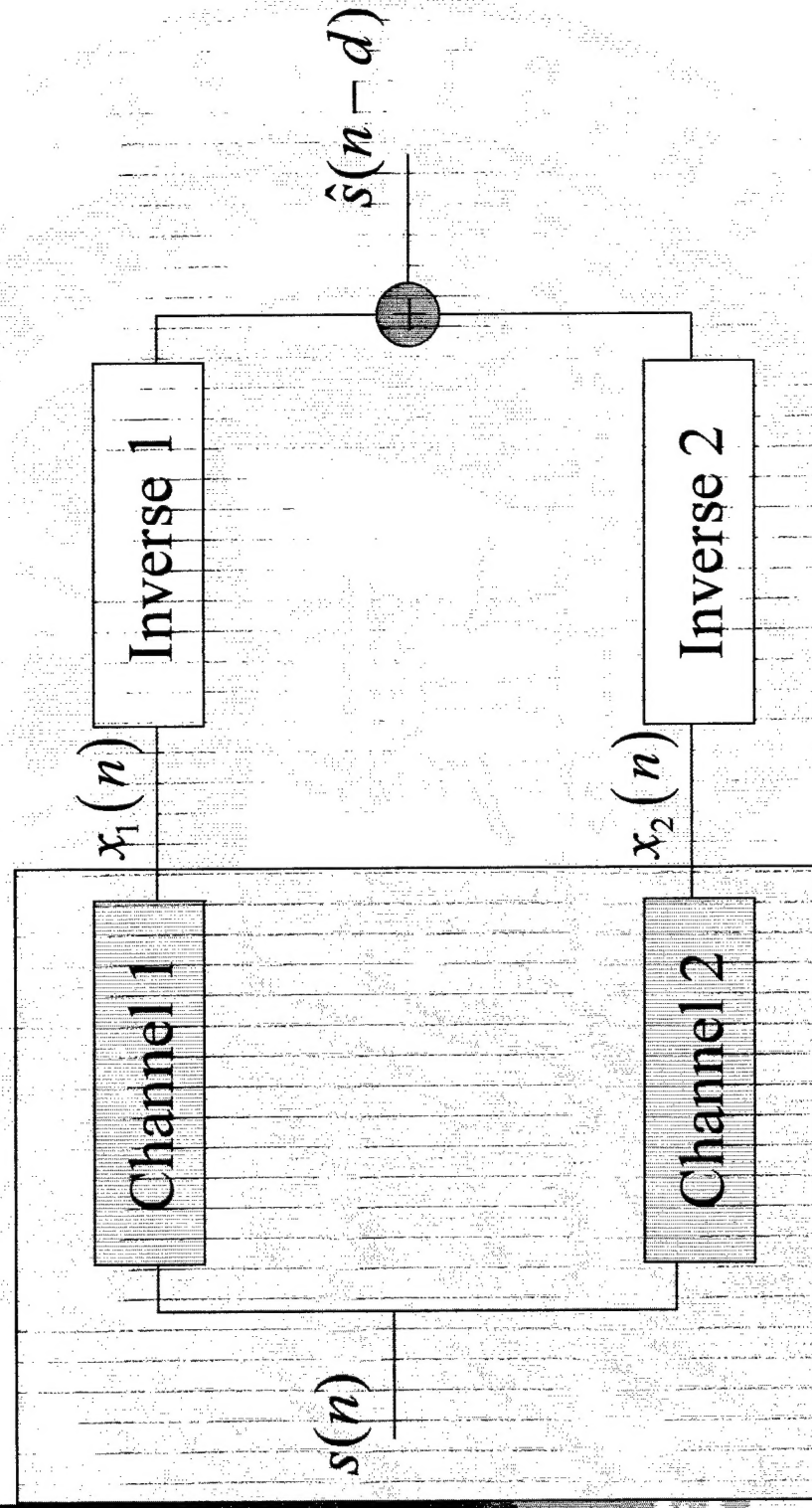


Dereverberation Approach

- Dereverberation accomplished by finding inverse filters for the channels.
- Use a reduced mutually referenced equalizers criterion to find inverses.
- Utilize second-order statistics of the reverberated speech signals.
- Speaker location and microphone locations not known a-priori.



Dereverberation System Diagram



**Unknown input and
channels**